SECOND BIMONTHLY PROGRESS REPORT

UNIVERSITY OF ALASKA
ERTS PROJECT NO. 110-8
November 30, 1972

A. TITLE OF INVESTIGATION: Sea, Ice and Surface Water Circulation, Alaskan Continental Shelf.

B. PRINCIPAL INVESTIGATOR/GSFC ID: G. D. Sharma and F. F. Wright/UN683

C. PROBLEMS IMPENDING INVESTIGATION: None

D. PROGRESS REPORT:

1. *Accomplishments during reporting period:* Water samples collected during Sept. 26-28, 1972 were filtered and suspended sediment distribution measured. Surface lateral variations and vertical variations of suspended load, temperature, salinity and percent light transmission in Cook Inlet were plotted.

2. *Plans for next reporting period:* ERTS images from Cook Inlet, Port Valdez and Kuskokwim Bay areas will be studied for the suspended load distribution and movement.

E. SIGNIFICANT RESULTS: See Separate Page

F. PUBLICATIONS: None

G. RECOMMENDATIONS: None

H. CHANGES IN STANDING ORDER FORMS: None

I. ERTS IMAGE DESCRIPTOR FORMS: Forms Attached

J. DATA REQUEST FORMS: None

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DISCIPLINE: Marine Geology and Ecology.

SUMMARY OF SIGNIFICANT RESULTS:

Two cruises were conducted in Cook Inlet to obtain ground truth. Forty-seven stations during 22-23 Aug. and 68 stations during 25-29 September 1972 were occupied and temperature, salinity, percent light transmission and suspended load of surface waters obtained. Similar data at various depths was also obtained at selected stations.

Cook Inlet is an estuary with complex mixing of river discharges and ocean water. The Upper Cook Inlet shows a gradual and systematic decrease in salinity, however, west of Kenai the mixing of waters is complex. The sediments in suspension originating at the head of the inlet generally settle out east of Kenai and Drift River. Sediment load in suspension decreased gradually from 1700 mg/l near Anchorage to about 50 mg/l in the Narrows. In the Lower Cook Inlet the suspended load varied between 1-10 mg/l.

Surface waters with sediments in suspension and ocean water with relatively lower sediment concentration are clearly descernible in ERTS-A images obtained during September 18, 1972 pass over Cook Inlet. The movement and mixing of these water can also be delineated in the images.